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Geometry and sedimentary fill of maar lake Laguna Potrok Aike, Southern Patagonia

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Laguna Potrok Aike is located in Southern Patagonia, Argentina (52°S, 70°W). The lake has a diameter of about 3.5 km and approx. 100 m water depth in its central part. Steep flanks separate the central plain from the lake shoulders in 15 to 30 m water depth. The lake is located at the boundary between the Southern Hemispheric Westerlies and the Antarctic Polar Front. It is highly susceptible to changes in the Antarctic Circumpolar Current controlling the regional precipitation patterns. Changes in precipitation led to lake level fluctuations of up to several tens of meters. The lake sediments possibly contain a 770 ka continuous paleoclimate record, which is unique in the southern South American realm. Laguna Potrok Aike will be drilled by ICDP in the near future. Four seismic surveys were carried out as pre-site survey for ICDP. Different stratigraphic units were distinguished and could be correlated to the lithologies of other known maars. The sediments of the uppermost Unit I are generally well-layered. Sub-units I-a and I-b on the lake shoulders are separated by a major unconformity and contain several paleoshoreline structures. In the central part of the lake, Sub-unit I-a and I-b are merged and form downlaps onto I-c. Pelagic sedimentation dominates in the northern and central parts, whereas mass movement deposits were found in the southern, western and eastern parts close to the steep diatreme flanks. Sub-unit I-d shows similar characteristics as I-ab. Unit II is interpreted as mass movement deposits. The bedrock that forms the steep diatreme flanks around the lake sediments consists

of sandstones found in outcrops around the lake.